



Annual Report of the Sanitary Board, Bombay Presidency

(now designated Board of Public Health Works)

For the Year 1932-33

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BOMBAY

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**ANNUAL REPORT OF THE SANITARY BOARD (NOW DESIGNATED
THE " BOARD OF PUBLIC HEALTH WORKS "), BOMBAY
PRESIDENCY, FOR THE OFFICIAL YEAR
ENDING 31st MARCH 1933.**

The constitution and functions of the Sanitary Board remained the same as last year throughout the year under report.

2. The personnel during the year under report was as follows :—

President.

The Commissioner, Central Division, Poona -

H. B. Clayton, Esq., M.A., C.I.E., I.C.S., J.P. (up to 26th March 1933).

W. W. Smart, Esq., B.A., Dip. Agr., I.C.S., J.P. (from 27th March 1933).

Members.

The Secretary to Government, General Department—

E. W. Perry, Esq., C.I.E., B.A., J.P. (up to 9th June 1932).

R. B. Ewbank, Esq., C.I.E., B.A., F.L.S., I.C.S., J.P. (from 10th June 1932 to end of the year).

The Chief Engineer and Joint Secretary to Government, Public Works Department—

P. L. Bowers, Esq., C.I.E., M.C., A.M.I.C.E., J.P.

The Director of Public Health for the Government of Bombay—

Dr. Accacio daGama, L.M. & S., D.P.H., D.T.M. & S. (up to 2nd December 1932).

Dr. R. V. Shiveshwarkar, B.A., M.B.B.S., D.P.H., D.T.M. (from 2nd December 1932 to end of the year).

Non-official Member.

Hoosenally M. Rahimtoola, Esq., B.A., M.L.C., J.P.

Member and Secretary.

The Superintending Engineer, Public Health, Bombay—

A. P. Maddocks, Esq., B.Sc., M.Inst.C.E., M.Inst.W.E., M.I.E., F.R.San.I. (up to 13th May 1932).

V. G. Shete, Esq., L.C.E., M.I.E. (Ind.), M.R.San.I., A.M.I.San.E. (from 14th May 1932 to end of the year)—Executive Engineer, Public Health Works Division: i/c duties of the Superintending Engineer, Public Health, Bombay.

The Board's executive functions are carried out chiefly by the Superintending Engineer, Public Health, whose Department has been subjected to severe retrenchment during the year. The post of the Superintending Engineer, Public Health,

was held in abeyance after the retirement of Mr. Maddocks until it came to be finally abolished in April 1933. During the period from 14th May, 1932 to end of the year, Mr. V. G. Shete, I.S.E., Executive Engineer, Public Health Works Division, carried on the duties of the Superintending Engineer, Public Health, in addition to his own.

The charge of the Public Health Works Division was held throughout the year by Mr. V. G. Shete. The charge of the Poona Water Works Division was held by Mr. R. A. Collett, A.M.I.C.E., and the charge of the Government Central Store and Workshop, Dapuri, by Mr. C. Holliman, A.M.I.Mech.E.

The Board placed on record the unfortunate demise of Dr. Accacio daGama, L.M. & S., D.P.H., D.T.M. & H., Director of Public Health and Member of the Sanitary Board, who was of great help to the Board in all Public Health matters that came up before them.

Reorganization. The Public Health Branch was reconstituted as follows during the year under review :—

(i) The Public Health Works Division, with headquarters at Poona, with five sanitary sub-divisions, viz., Sind, Gujarat, Khandesh, Sholapur and Belgaum, distributed all over the Presidency (including Sind) each with a Sub-Divisional Officer for investigation, preparation and execution of Public Health schemes.

(ii) The Poona Water Works Division for carrying out the new capital and maintenance and repairs works in connection with the Poona and Kirkee Water Works and the maintenance and repairs of the Bahiroba Pumping Station of the Poona Drainage Works. The control of the sixth Sanitary Sub-Division, "Thana Sanitary and Salsette Water Supply Sub-Division", was transferred from the Public Health Works Division to the Executive Engineer of this Division with effect from 1st April 1933.

(iii) The Government Central Workshops at Dapuri, Kirkee, constituting another Executive Division for carrying out repairs, the storage and upkeep of Government plant and machinery, the manufacture of special castings, etc. As the Boring Division under an Executive Engineer was abolished on 1st March 1931 and all the plant and machinery were transferred to the Government Central Workshops, leaving part of the plant at Ahmedabad under the Mechanical Overseer, the work of such borings only as were urgent was undertaken.

From 1st September 1932, the control of the Poona Water Works Division and the Dapuri Workshops was transferred from the Public Health Branch to the Central Circle, so that the Public Health Branch from that date to the end of the year consisted of the head office and one Executive Division (Public Health Works Division) with five Sub-Divisions under its control.

As a result of the action taken on the Report of the Reorganisation Committee, one Executive Division (Public Health Works Division)

and four Sub-Divisions were abolished from 31st March 1933 by transferring all works under execution to the local officers of the regular Public Works Department. The fifth Sub-Division (Sind Sanitary Sub-Division) was retained but was transferred to the control of the Sind Public Works Department Officers. The duties now retained with the new officer called the "Consulting Public Health Engineer to Government" are only of an advisory character.

The work of inspection of the municipal pumping plants for water supply and drainage is carried out by the Officer, i/c of the Dapuri Workshops who is now designated Executive Mechanical Engineer and Works Manager, Dapuri. Information regarding the working of sewage and water supply pumping plants throughout the Presidency was continued to be collected by the Superintending Engineer, Public Health, in order that the municipalities concerned might be advised with respect to their maintenance expenses and the efficient working of the plants.

No meeting of the Sanitary Board was held during the year under report, matters coming before the Board being
Meetings of the Board. dealt with by circularising the members.

The Board accorded approval to the undertaking of the following
Works approved during the year. works for execution by the Superintending Engineer, Public Health :—

1. Bhimashankar water supply.
2. Surat Khadi drainage.
3. Improvements to Karad water supply—providing sluice valves in the distribution system.
4. Chalisgaon drainage.
5. Street drains in Dhulia.
6. Providing septic tank latrines in the Modikhana at Sholapur.
7. Improvements to Sholapur water supply—installing an additional pumping unit.

A grant-in-aid to cover the full centage charges in the case of Nos. 2, 4 and 5, and 18 per cent. of the full 28 per cent. centage charges in the case of Nos. 1 and 3 were recommended.

Due to financial stringency, it has been decided by Government that works for which the full cost (i.e., including centage charges) cannot be definitely provided by the local authorities concerned should not be taken up and that urgent works only for which funds have been provided should receive attention. This change in the policy of giving subventions to local bodies has considerably retarded the progress of public health improvements, and no new works worth mentioning were carried out during the year, the works already in progress only being completed.

Stoppage of subventions to local bodies.

Progress of water supply schemes during the year.

The works in progress during the year under report were as follows :—

WATER SUPPLY SCHEMES.

I. SIND.

1. *Hyderabad*.—The town of Hyderabad (including Gidu, Transfuleli and other suburbs) has a population of approximately 95,930, according to the 1931 census. Its daily consumption ranges from about 2 million gallons per day in the winter to 3·6 million gallons in the hot weather.

(i) *Bazar Main*.—The work of enlarging the Bazar Main and relaying the old pipes which was in progress during the last year, was completed in the month of January 1933 and the Bazar main is now in operation. The total expenditure incurred to the end of March 1933 was Rs. 1,72,193.

(ii) *Fort Lift Pumps*.—The work of installing additional pumps at the Fort Lift Pumping Station, electrically operated, was completed and handed over to the Municipality for maintenance. The total expenditure up to end of March 1933 was Rs. 29,316.

(iii) *Hyderabad Central Prison Water Supply*.—The work of laying a new 6" main from the Municipal system that was undertaken last year was completed and the jail now gets the municipal supply.

(iv) An extension of the distribution system in municipal limits was carried out by the Municipal staff at a cost of Rs. 5,726.

2. *Karachi*.—The town of Karachi has a population of 260,630 according to the 1931 census. The present source of supply viz. subsoil flow received from the Malir River basin is proving insufficient and during the hot weather months there is great anxiety felt in case the drought continues.

During the year, the following extensions to the present works were carried out by the Municipal staff :—

	Expenditure Rs.
(1) Laying of water mains 3" to 9" in dia. to a total length of 44,402'	72,069
(2) Extension of the dry stone gallery at the gorge by 1,700'	68,562
(3) All work in connection with wells 6 and 7 was completed and all machinery was fitted up.	67,324
(4) This has been brought into operation since April 1933.	

The investigation undertaken by the Government Public Health staff for ascertaining the total surface flow yield from the two tributaries 'Khadeji and Mol' of the Malir river and the boring investigations undertaken last year, were completed and fully reported upon. Proposals to conserve the subsoil flow at Dumlotte gorge by putting a water tight diaphragm of sheet piling across the gorge, estimated to cost Rs. 2,37,200 were made and were under the consideration of the Municipality.

The supply available from the Malir source being limited and the requirements of Karachi being ever on the increase, an investigation of new sources of supply, preferably the Indus River, were advised upon : the Public Health Branch, which has been entrusted with these investigations, carried out preliminary surveys and these were in progress at the end of the year.

3. *Jacobabad*.—The actual daily consumption in the town having been found to have over-reached the designed yield of 60,000 gallons from the two supply wells at the head works, it was decided to lay down a third supply well 25' diam. and 23' deep. This work which is carried out from savings on the sanctioned scheme was in progress and the expenditure to the end of March 1933 was Rs. 2,03,050. The Water Works Pumping Station was maintained by the Municipality throughout the year, the expenditure being Rs. 11,444.

4. *Sukkur*.—Arrangements for taking up the water supply scheme for the improvements of the distribution system were made by the Municipality, but work was not started by the end of the year. The Pumping Station and Rapid Filtration Plant were maintained by the Municipal staff and the expenditure on the same amounted to Rs. 81,808.

II. NORTHERN DIVISION.

1. *Ahmedabad*.—The town is continually growing and the works provided are proving inadequate for its needs. Investigations for finding additional sources of supply are being carried out. Extensive improvements to the distribution system were carried out by the engineering staff of the Municipality. The Municipality contemplates undertaking the execution of the Kalupur Ward Water Distribution Scheme, estimated to cost about Rs. 2,50,000. The detailed lengths laid and the expenditure incurred have not been reported by the Municipality.

2. *Surat*.—The work on the second stage of enlargement of the trunk main from Lal Gate to Chowk which was in progress last year, was completed, the total length laid being 2,579 feet. Also some minor items which remained to be completed in connection with other improvements, were carried out. The work was carried out by the Public Health Branch staff and the total expenditure incurred during the year was Rs. 22,487.

III. CENTRAL DIVISION.

1. *Jalgaon*.—The Girna Water Supply Scheme estimated to cost Rs. 5,50,350 net has been completed and handed over to the Municipality for maintenance. No new works were carried out during the year under report except that of carrying out some minor works costing Rs. 877 to complete certain of the works already constructed.

2. *Nandurbar*.—Miscellaneous works on the first stage of the project to the extent of Rs. 4,289 were carried out.

An extension of the distribution system forming part of the second stage of the project was also taken in hand and a 792' length of 3" and 2" pipes were laid, the expenditure incurred being Rs. 507. The work was carried out by the Public Health Branch staff.

3. *Poona*—(i) *Poona Cantonment Water Works*.—The improvements carried out during the year were :—

(1) A new Babcock and Wilcox Boiler with a chain grate stoker capable of producing 4,000 lbs. steam per hour with 120 lbs. pressure was erected complete. Expenditure Rs. 36,853.

(2) Two new Bellis Marcom high speed vertical compound condensing steam engines directly coupled to centrifugal pumps 18" dia. for lifting raw water from the canal capable of discharging 250,000 gallons per hour against 40' head, were ordered and the work of fixing is in progress. Expenditure Rs. 22,556.

(3) The work of remodelling the Mutha Right Bank Canal to accelerate the emptying of the canal at times of canal closures and to impound the City and Cantonment Water Works has been in progress. Expenditure Rs. 49,643.

The works were maintained at high efficiency and the supply well regulated throughout the year. The quantity of water filtered and distributed during the period under report was 1,021,601,699 gallons. This works out to an average of 2·79 million gallons per day. The average dose of perchloron is 4·15 lbs. per million gallons. The mean dose of alum works out to ·88 grain per gallon. During the monsoon the dose is 1·6 grains and during the dry season ·5 grain per gallon. The maintenance costs were Rs. 1,66,423 and the actual revenue assessed during the year was Rs. 3,98,476.

(ii) *Poona City*.—The work of remodelling the distribution system and introducing hydrants carried out by the Municipal Agency was in progress. The actual lengths of old lines removed or new lines laid are not available.

The head works were improved by providing a 36" bye-pass line in the settling tank and putting in electric pumps for High Level Service. Also a new 24" main for the Katraj supply was laid from a point sufficiently high to command the settling tanks. The expenditure on these improvements amounted to Rs. 1,75,705.

The daily consumption in the city municipal limits had been about 8 million gallons per day which gives a rate of nearly 50 gallons per head. This was considered too large and measures have been taken by the Municipal staff to locate, and find out means to check, any waste of water. The average daily consumption per head has far exceeded the original anticipated figure. The Municipality was advised to introduce meter system wherever possible.

(iii) *Kirkee Water Supply*.—The M. & R. of the Kirkee Water Works purchased by the Bombay Government from the Military Authorities at a cost of Rs. 5,00,000 were carried out at a cost of Rs. 49,824. The

water from Pashan Lake pumped and delivered after treatment amounted to 260,758,394 gallons. The water filtered and drawn from the Holkar Bridge head works amounted to 211,482,592 gallons. The average daily supply for Kirkee worked up to 0·58 million gallons. The average dose of alum was 1·4 grains per gallon and that of perchloron 4·15 lbs. per million gallons. The raw water from the Pashan Lake is used for the Government House Gardens all the year round. The following extensive improvements were also carried out during the year :—

(a) *Pashan raw water mains.*—Of the 2 existing 12" and 10" C. I. mains which previously carried pure water to Ganeshkhind and Kirkee, the 12" main is now utilised for conveying raw water from the Pashan Lake to the Holkar Bridge water works by extensions of 15", 14" and 12" mains, whenever the Pashan supply has to be drawn upon for Kirkee. The other main of 10" dia. conveys filtered but unchlorinated water to Government House Gardens all the year round. Expenditure Rs. 92,375.

(b) Two additional combined filter units each 15' × 12' were constructed to filter 0·623 million gallons per day in addition to the existing three units of 18' × 10' each. The total filtering capacity now comes to 1,555 million gallons per day. The extension of the filter house to accommodate the additional unit was simultaneously completed. Expenditure Rs. 17,218.

(c) The erection of an elevated steel tank, 60' square and 12' deep on steel staging 70' from ground level with a conical roof and having a capacity of 250,000 gallons, was carried out. Expenditure Rs. 4,473.

(d) The work of laying a 15" gravitation C. I. main from the bottom of the new elevated service reservoir to the existing 9" main that supplied water to the Kirkee Cantonment Area and Government House was completed as also that of a new 3" dia. branch main (Everite pipe) to supply water to Chikhalwadi and also a 4" and 3" branch for Bopodi village. Expenditure Rs. 17,102.

(e) The work of laying a 15" gravitation main consisting of a reinforced concrete Hume pipe for a length of 4½ miles, along Bund Road, and Deccan College Road, to Holkar Bridge Water Works which was in progress last year, was completed, the total actual cost being Rs. 1,84,038. The expenditure during the year was Rs. 2,073.

4. *Salsette and Ambernath Water Supplies.*—The following were the improvements carried out during the year :—

(1) The work of providing 3" and 4" C. I. pipe lines along the road in Sector A in S. S. 7 Khar which was undertaken in February 1932, was completed during the period under report. The length of the 3" C. I. pipe line laid complete was 1,860' and that of the 4" one was 90'. The total estimated cost of the work was Rs. 4,917. The expenditure during the year was Rs. 776.

(2) The work of providing water supply to the Tejpal Sonari Scheme at Vile-Parle was estimated to cost Rs. 4,696. This was undertaken

in the month of December 1932. The expenditure during the current year was Rs. 4,108.

(3) The work of providing meters to the public in S. S. 19 and 21 is in hand. The estimated cost of these works is Rs. 1,212 and Rs. 10,000 respectively. The meters are ordered for fixing whenever connections are applied for by the customers. The expenditure during the year was Rs. 10,314.

(4) The Salsette Water Supply Works S. S. 19 were maintained at a cost of Rs. 2,77,733, the major part of the expenditure being incurred on the purchase of water from the Bombay Municipality. The revenue from this scheme amounted to Rs. 4,60,319.

(5) The Ambernath Water Supply Works S. S. 21 were maintained at a cost of Rs. 26,766. The supply pumped amounted to 58·7 million gallons and the revenue assessed amounted to Rs. 41,297.

5. *Sholapur*.—The remaining work of the second stage of laying 3,300' out of 5,900' of the 24" main was completed and the whole of the rising main is now functioning. The expenditure to end of March 1933 was Rs. 96,290.

The third stage of the work of providing 33" and 30" hume pipe gravitation mains was also completed and the line put into commission at the end of the year. The length of the 33" main is 5822' and of the 30" main, 7,165' giving a total length of gravitation main as 12,987 feet. The expenditure to the end of the year was Rs. 2,12,749.

6. *Karad Water Supply*.—As the old oil engine working the Pumping Plant was worn out, new engines were obtained at an estimated cost of Rs. 27,900 and installed during the year. The engine house was also extended to accommodate the new engines and the work was in progress. The expenditure during the year was Rs. 10,387.

7. *Satara Water Supply*.—The scheme for improvements to the Satara Water Supply sanctioned in 1929 and estimated to cost Rs. 1,84,000 net was to be taken up for construction by Municipal Agency. Proposals for modifying the scheme to utilize the available head of about 500 feet to produce electricity were under scrutiny, and a start on the works has been made.

Besides carrying out and supervising the above major works, the Public Health Branch carried out other minor contribution works such as Improvements to Bhimashankar Water Supply, Improvements to Nasik Water Supply, etc. At Nasik, the porous pipe work of a length of about 250' was completed and the supply to the jack-well was more continuous. The Ratnagiri Water Works were re-transferred to the local Public Works Department in November 1932 after completion of the replacement of the gravitation main. The annual maintenance and repairs of water supply pumping stations at Uran, Matheran, Alandi and Shingnapur were undertaken as contribution works for the local bodies concerned and the Government Pumping Stations for Pandharpur, Karad and Dharwar Police Lines were worked by the Public Health staff. The Satara Camp Water Supply works were also managed by the Public Health Branch.

The total expenditure on maintenance works amounted to Rs. 50,000. The actual revenue realised from Karad and Pandharpur Municipalities to whom the supply is sold in bulk was Rs. 61,002 (15,562 + 45,440).

The following minor works were undertaken by the Boring staff under the Executive Mechanical Engineer during the Boring Operations. year under report :—

(1) Testing the output and recuperation of three bore holes at Broach in the moat. The supply was pumped by air lift pumps. The tests were made at municipal cost to decide on the scheme to be proposed for the Broach Water Supply.

(2) Taking trial bores in the bed of the river Narbuda. This was also done with a view to ascertain whether underground supplies could be used for the Broach Water Supply.

The boring work with all the plant has been transferred to the Executive Mechanical Engineer's Division and does not form part of the Public Health Branch since November 1932.

DRAINAGE SCHEMES.

I. SIND.

1. *Karachi*.—The extensive improvements to the drainage works consisting of making cement concrete rings for 77 manholes in the Lyari quarters, 49 in Jamshed and Garden quarters and 27 in the Gwali Lane, providing inlet pipes and manholes to Ejector Station No. 17 in the Artillery Maidan, and laying pipe sewers of various diameters to a total length of 23,935 Rft. were carried out by the engineering staff of the Municipality. The net revenue from the sewage farm amounts approximately to Rs. 30,000 per annum. The expenditure incurred during the year was Rs. 1,41,196.

2. *Hyderabad*.—The Municipality made extensive surface drains in the town and repaired the old surface drains. The total expenditure on these works amounts to Rs. 20,895.

3. *Shikarpur*.—The following works were carried out during the year :—

- | | | |
|----------------------|----|--|
| (1) Collecting sewer | .. | Completed except a length of 400' from the junction manhole. |
| (2) Grit well | .. | Completed except inside masonry, finishing bottom and screen chamber. |
| (3) Pumping Main | .. | Length completed by Public Health staff is 8,545'. The crossing under N. W. Railway has been completed by the Railway Authorities. |
| (4) Sewage Farm | .. | The required area has been acquired and the construction of disposal works is being taken in hand. |

The expenditure to the end of March 1933 was Rs. 1,47,774.

4. *Sukkur*.—Surface drains to the extent of 5,069 feet and underground drains to the extent of 1,200 feet were constructed by the Municipal staff at a total cost of Rs. 14,836 and the maintenance charges including pumping amounted to Rs. 23,807.

II. NORTHERN DIVISION.

1. *Ahmedabad*.—Extensions of sewer lines were in progress. The improvements to the Jamalpur Pumping Station for providing proper screens and grit elevators were in hand and the details of a Suburban Drainage Scheme were being worked out by the Municipal staff.

2. *Surat*.—The revised scheme of underground drainage, costing about Rs. 50 lakhs and proposed to be taken up in stages, was still under the consideration of the Municipality, as regards finance. Work on the first stage of the Surat Drainage, called Khadi Drainage, was started but was stopped, pending the decision of the Municipality on the comprehensive scheme. The second stage of providing an outfall sewer and a Central Pumping Station was sanctioned by Government but work has been held in abeyance.

3. *Kapadwanj*.—The sewerage of Kapadwanj as provided in the sanctioned scheme was almost completed. The minor work of providing ventilators and the construction of additional manholes were carried out during the year under report. Expenditure Rs. 725.

The work of providing sewers in the bye-lanes which forms the second stage of the project has been considerably delayed on account of the inability of the local body to deposit their contribution. Galvanized wrought iron pipes of 2" and 1½" diameter for extension of water supply were laid in two bye-lanes during the year, the expenditure incurred being Rs. 353.

III. CENTRAL DIVISION.

1. *Dhulia*.—A partial drainage scheme which was in progress last year was completed except for a water supply connection to a Pail Depot. The Municipality laid surface drains to the extent of 1,021 feet at a cost of Rs. 1,586. A small amount of Rs. 80 was incurred to complete the works of an effluent channel and sewage farm, the more important work constructed during the year being pail depots at a cost of Rs. 832. The sewage farm was not brought into use.

2. *Nasik Road Central Prison*.—The sewage farm required extension of the area under operation and Government sanctioned this extension at an estimated cost of Rs. 8,000. Arrangements for land acquisition were in progress.

3. *Nandurbar*.—The plans and estimates for a drainage scheme, estimated to cost Rs. 1,35,000 net to be carried out in three stages were prepared by the Public Health Branch, and these were sanctioned by Government. The first stage consists of laying an intercepting sewer and a few branch drains in District No. 1, the second stage of providing

complete drainage for District No. 2 and all remaining branch drains in District No. 1. All stand-posts will be provided with drainage connections in this stage ; the third stage consists of an outfall sewer, a settling tank and a sewage farm. The drainage portion in the first stage of the combined scheme was almost completed during the year and the second stage was in progress. The total length of S. W. sewers (sizes varying in diameters from 12" to 6") laid during the year was 9,184 feet. Expenditure incurred on the drainage portion was Rs. 12,163.

4. *Poona*.—The Poona Drainage Improvement Scheme was in progress during the year under review.

First Section.—Stoneware pipe sewers 6" to 15" in size and 9,229' in length were laid complete with 200 house connections in Nana, Bhawani and Mangalwar Peths forming part of the unsewered area of the city. Plans and estimates for a subsidiary Low Level Pumping Station with drains to serve the low lying area in Mangalwar Peth were approved and the construction work taken up. Work on this Low Level Pumping Station was started and good progress made. Detailed investigations for a similar but smaller station to serve the low lying area on the right bank of the Mutha River near the Lakadi Bridge were in hand. Extensions of the sewer lines in the sewered area of District Nos. 1, 2, 4, 5 and 6 were carried out by the Municipal staff under the supervision of the Public Works Department. These mainly consisted of laying—

- (1) a 15" hume pipe 1,702' long as a relief sewer in district No. 1.
- (2) a 12" S. W. pipe 2,318' long as Manik Nala Western Bank Sewer.
- (3) a 9" S. W. pipe 2,105' long as relief sewer in District No. 6.
- (4) 39 Public latrines of flushing type, 7 flushing urinals and 275 wash privies were constructed during the year.
- (5) 6" S. W. pipe laterals, of a total length of 4,420' were also laid with 363 free and extra house connections.

The expenditure incurred on works done by the municipal agency amounted to Rs. 1,03,463. The expenditure incurred during the year on works carried out by Government agency amounted to Rs. 62,877 which brought the total expenditure on the first section to Rs. 19,56,685.

Second Section.—The works of providing a Heenan Froude Mechanical Water cooler, a crude coil storage tank and an office and store room at the Bahiroba Pumping Station were taken up and completed. Plans and Estimates for providing a fourth pumping unit electrically driven with a capacity of 420,000 gallons per hour were prepared and sanctioned and arrangements to start the work were made. The expenditure during the year amounted to Rs. 10,489, bringing the total on the second section to Rs. 16,40,921.

The maintenance and repairs of the outfall works and the Bahiroba Pumping Station were carried out at a cost of Rs. 84,095. The quantity of sewage pumped during the year was 1,777,110,000 gallons or an average of 4.85 million gallons per day. The sewage was disposed of by

irrigation on land commanded by distributaries Nos. 4 to 6 of the Mutha Right Bank Canal.

Poona Suburban Municipal Internal Drainage.—The work of laying sewers of District Nos. 11 C and 11 D which was started last year by the Public Health Branch was in progress. The total length laid during the year was 13,979 feet. Drainage of part of District No. 10 is dependent upon the Cantonment Board taking up their drainage scheme and as that body has not yet decided to take up the work, proposals to temporarily connect the unsewered portion of District No. 10, to the Poona City system were submitted to the local bodies and are under their consideration. The expenditure incurred during the year under review was Rs. 63,079.

Poona Cantonment.—Proposals for the partial scheme with alternatives, estimated to cost Rs. 2,33,440 were still under the Cantonment Board's consideration.

5. *Pandharpur.*—The work on a 24" concrete outfall sewer, estimated to cost Rs. 55,296 gross which was held up for want of contribution from the Municipality was again taken up and a length of 750' laid, making a total length of 3,440'. The work remaining to be done is still 883 feet. The Municipality carried out an extension of their surface gutters for a length of 470' at a cost of Rs. 368.

6. *Sholapur.*—The extension of branch drains by the Municipal Agency was in progress. Proposals for extension of the outfall sewer were under consideration as regards finance.

IV. SOUTHERN DIVISION.

1. *Belgaum.*—The town is not at present provided with any piped water supply, but is dependent on wells distributed throughout its limits. A main drainage scheme has, however, been found necessary and a scheme has accordingly been drawn up for providing new surface drains and three main collecting drains conveying the sullage to settling tanks, the effluent from which will be disposed of by irrigation. Work on the second stage of the scheme was completed and handed over to the Municipality for maintenance. The works of constructing surface drains in some of the bye-lanes were taken up by the Municipality and are nearing completion. The total expenditure incurred by the Municipality on drainage for the year 1932-33 is Rs. 12,660.

2. *Gadag-Bettigeri.*—The whole work of drainage is divided into four stages. The works in stages I and II have been completed and handed over to the Municipality, the lengths constructed during the year being 2,426 Rft. and 2,572 Rft. respectively. The construction of Stage III consisting of a settling tank though sanctioned by Government, has not been commenced as the idea of constructing two separate sedimentation tanks, one for Gadag and the other for Bettigeri has been given up in favour of constructing only one tank below the Bettigeri town area, connecting the Gadag sullage flow from the railway bridge to Bettigeri by one 12" S. W. or Hume Pipe sewer.

Out of 13,548 Rft. of drains provided in the fourth stage, about 12,001 Rft. have been laid. The total expenditure incurred during the year was Rs. 22,688.

3. *Bijapur*.—The Municipality extended their surface drains by 4,607 feet in the town at a cost of Rs. 6,347.

GENERAL.

In addition to the construction works in progress, the Public Health Branch staff was engaged during the year on survey and project work. The more important of the schemes that were under investigation are :—

- | | |
|------------------------|----------------------------|
| 1. Amalner Drainage. | 4. Chiplun Water Supply. |
| 2. Khed Water Supply. | 5. Ratnagiri Water Supply. |
| 3. Mahad Water Supply. | 6. Kurla Drainage. |

The total expenditure on works carried out by this Branch during the year 1932-33 was approximately Rs. 13,30,000. Government gave help to local bodies by way of grants-in-aid to cover the cost of centage charges and part cost of capital works to the extent of Rs. 1,56,355, while they also gave rebate grants to the extent of Rs. 11,000. The total cost of the establishment during the year amounted to Rs. 2,19,605.

The execution of Public Health Works is now entrusted to the Executive Engineers of Divisions, who carry out such works in consultation with the Consulting Public Health Engineer to Government. Fees are also now charged for scrutiny and inspection and supervision done on behalf of Government, the scales being $1\frac{1}{2}$ per cent. for scrutiny, $2\frac{1}{2}$ per cent. for preparation of projects for local bodies, and $12\frac{1}{2}$ per cent. for construction by Government Agency.

Poona, 17th March 1934.

V. G. SHETE,

Secretary,

Board of Public Health Works,
Bombay Presidency.

No. S. N. B.—26.

Poona, 20th March 1934.

Seen and returned with compliments.

2. The report shows that a great deal of useful work has been carried out. Local bodies, owing to the new rules, now ask for the services of the Executive Engineer, Public Health Works Division, to prepare plans and estimates, but prefer to employ their own staff to execute works.

(Signed) P. J. GANDHI,

for Commissioner, C. D., and President.

Board of Public Health Works.